

A SEMIAQUATIC WEEVIL, *PHYTOBIUS CAVIFRONS*
(LEC.), MIMICS NYMPHS OF SALDIDAE (COLEOPTERA,
CURCULIONIDAE; HEMIPTERA, SALDIDAE)¹

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ABSTRACT

The weevil *Phytobius cavifrons* (Leconte) was observed behaviorally mimicking nymphs of the saldid, *Saldula pallipes* complex, on a gravel bar in a small river in California. The behavioral mimicry is considered more significant than the relatively superficial morphological similarity. *P. torvipes* (Dietz) = *P. cavifrons* (Leconte), **new synonymy**.

On 6 May 1962, while collecting adult Saldidae for the University of California teaching collection, I accidentally discovered an unusual relationship between the weevil *Phytobius cavifrons* (Leconte) and nymphs of the *Saldula pallipes* complex.

I was on my knees using an aspirator to collect adult saldids which were very numerous. Among them were many black and white checkered nymphs which I was not collecting. By chance, I noticed what appeared to be a pair of nymphs in copulatory position. Since this didn't make sense, I quickly aspirated them and discovered to my surprise that they were weevils in copulo. I then began to observe the "nymphs" more carefully and found that many actually were weevils (I collected 19). Their size, shape, and coloration were similar to those of the nymphs. The distinctive black and white color made both weevils and saldid nymphs very obvious against the sand and gravel background. They were not in any way cryptic.

In addition to morphological similarity was a more important aspect of their mimicry. The weevils moved about on the ground in a quite atypical way, acting like the saldid nymphs. They ran quickly, pausing briefly, only to run again in an erratic manner. Other members of the tribe Phytobiini are usually found on their host plants and do not move in this way, though they do run and fly more quickly than most weevils.

This behavioral mimicry was most important in the success of this model-mimic relationship, since the morphological similarity is relatively slight and not more than can be found between saldid nymphs and numerous other Ceutorhynchinae, most of which are not found in saldid habitats. Such a large change from normal behavior patterns negates the likelihood of similarity due to convergence.

These weevils were collected on a gravel bar extending into Lagunitas Creek at Tocaloma a few miles north of the boundary of Samuel P. Taylor State Park in Marin County. The bar was triangular, about 15 feet long and

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8 to 2 feet wide, with sparse, scattered grass and low herbaceous weeds. I returned a week later to collect more specimens and make more complete observations but found that the gravel bar had been washed away in floods from heavy rainfall during the preceding week.

The saldids were identified by Dr. R. H. Cobben of the Netherlands as part of a widespread complex of forms and races with a holarctic distribution (pers. comm.). *Phytobius cavifrons* is less widespread, being restricted to the western U. S. I have specimens from California, Washington, and Utah of this species, which is highly variable in size and color pattern. The variety *torvipes* Dietz (1896), described as *Pelenomus*, is incorrectly treated as a species by Hatch (1971). Hatch reports that *P. torvipes* "adults are frequently taken on mud banks". I have checked the types and series of specimens from Washington and California and have determined that the name *P. torvipes* is synonymous with *P. cavifrons* (**new synonymy**).

LITERATURE CITED

- DIETZ, W. G. 1896. Revision of the genera and species of Ceutorhynchini inhabiting North America. Trans. Amer. Ent. Soc. 23:387-480.
HATCH, M. H. 1971. The Beetles of the Pacific Northwest. Part V. Univ. Washington Publ. Biol. 16:vii-xii, 1-662.

